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| APPLICATION NO.           | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---------------------------|-------------|----------------------|---------------------|------------------|
| 10/535,660                | 05/19/2005  | Masayoshi Shimizuya  | Q87729              | 4308             |
| 65565                     | 7590        | 12/02/2008           |                     |                  |
| SUGHRUE-265550            |             |                      | EXAMINER            |                  |
| 2100 PENNSYLVANIA AVE. NW |             |                      | PILKINGTON, JAMES   |                  |
| WASHINGTON, DC 20037-3213 |             |                      |                     |                  |
|                           |             |                      | ART UNIT            | PAPER NUMBER     |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/535,660

**Applicant(s)**

SHIMIZUYA, MASAYOSHI

**Examiner**

JAMES PILKINGTON

**Art Unit**

3656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 6-10 is/are pending in the application.
- 4a) Of the above claim(s) 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 May 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/5508)
- Paper No(s)/Mail Date 5/19/05
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Claim 10 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 13, 2008.

### *Drawings*

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the stationary raceway surface on the outer circumferential face or the stationary ring and the rotary side raceway surface on an inner circumferential face of the rotary ring (clms 6, 8 and 9), and a caulking portion (clms 8 and 9, caulking portion is not in the Figure depicting Applicant's invention) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
3. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 6-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "the finish working" in line 12. There is insufficient antecedent basis for this limitation in the claim.

Claims 8 and 9 line 7 recites "having a plurality of rows of inner ring raceways on the outer circumferential face." It is not clear which one of the inner ring or the shaft recited in line 6 have this structure.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Austin, USP 6,158,124, in view of Aller, USP 2,796,658.

Austin discloses a bearing unit for supporting a wheel having a disk comprising:

- a stationary ring (34) having a stationary side raceway surface on an inner circumferential (surfaces for the balls), supported by and fixed to a suspension device (36) in the state of use;
- a rotary ring (14) having a rotary side raceway surface in a portion opposing to the stationary side raceway surface on an outer circumferential (surfaces for the balls), and having a flange (20) on the outer circumferential face;
- a plurality of balls (56) provided between the rotary side raceway surface and the stationary side raceway surface; and
- a disk (30) coupled and fixed to the flange (20)
- wherein a finish working is conducted on both sides of the disk (30, by 92) under the condition that the disk is coupled and fixed to the flange after the bearing unit for supporting a wheel having a disk has been assembled to suppress the deflection of the disk caused by the rotation of the rotary ring (C4/L43-47)
- a raceway ring of one of the stationary ring (34) and the rotary ring (14) is an outer ring (34) having a plurality of rows of outer ring raceways on the

inner circumferential face (Austin discloses two row having balls 55 and 56),

- a raceway ring of the other of the stationary ring (34) and the rotary ring (14) is an inner ring (14) assembling body, in which a shaft member (22 for shaft 24) and an inner ring element (58) are combined with each other, having a plurality of rows of inner ring raceways on the outer circumferential face,
- one inner ring raceway (for balls 55) is formed in a middle portion of the shaft member (14/22) in the axial direction,
- a small diameter step portion (70), the diameter of which is smaller than the inner ring raceway portion (14), is formed in an end portion of the shaft member (14/22) in the axial direction,
- the inner ring element (58) has the other inner ring raceway on the outer circumferential face,
- one end face of the inner ring element (58) in the axial direction is held down by a caulking portion (at 72), which is formed by plastically deforming an end portion of the shaft member (22) outward in the radial direction, under the condition that the inner ring element is outwardly engaged with the small diameter step portion (70)

Austin does not disclose using balls that have a small difference in their diameters.

Aller teaches using ball having a small difference in their diameters (maximum difference allowed in Aller is  $5.08\text{ }\mu\text{m}$  or  $0.0002$  inches, C4/L49-61) for the purpose of producing a precision ball bearing to operate in conditions which have critical operating tolerances (C1/L18-35).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Austin and provided balls having a small difference in their diameters, for the purpose of producing a precision ball bearing to operate in conditions which have critical operating tolerances.

Austin in view of Aller does not disclose that the difference between the balls is  $1.5\text{ }\mu\text{m}$  or less (including  $1.0\text{ }\mu\text{m}$ ) and that the finishing work is conducted until the deflection is not more than  $35\text{ }\mu\text{m}$  or less (including  $25\text{ }\mu\text{m}$ ).

It would have been obvious to one having ordinary skill in the art to adjust the tolerance to these values, since the general conditions are disclosed in Austin in view of Aller, discovering the optimum range or value of a result effective variable involves only routine skill in the art. In addition, it would have been obvious to one having ordinary skill in the art at the time the invention was made that selecting smaller tolerances to yield the predictable result of reducing vibration and wobble in the bearing making bearing more precise.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES PILKINGTON whose telephone number is (571)272-5052. The examiner can normally be reached on Monday - Friday 7-3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571)272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JAMES PILKINGTON/  
Examiner, Art Unit 3656  
11/24/08

/Richard WL Ridley/  
Supervisory Patent Examiner, Art Unit 3656